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Gender issues from the perspective of health-care professionals in Neuro-oncology: an EANO and EORTC Brain Tumor Group survey

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Theodorou, Marilena ; Brandsma, Dieta ; van den Bent, Martin ; Dirven, Linda

Abstract: Background: Women represent an increasing proportion of the overall workforce in medicine but are underrepresented in leadership roles. Methods: To explore gender inequalities and challenges in career opportunities, a web-based survey was conducted among the membership of the European Association of Neuro-Oncology and the Brain Tumor Group of the European Organisation for Research and Treatment of Cancer. Results: A total of 228 colleagues responded to the survey: 129 women (median age 45 years; range, 25-66 years) and 99 men (median age 48 years; range, 24-81 years); 153 participants (67%) were married and 157 participants (69%) had at least 1 child. Women less often declared being married (60% vs 77%, $P = .007$) or having a child (63% vs 77%, $P = .024$). Men more frequently had a full-time position (88% vs 75%, $P = .036$). Women and men both perceived an underrepresentation of women in leadership positions. Half of participants agreed that the most important challenges for women are leading a team and obtaining a faculty position. Fewer women than men would accept such a position (42% vs 56%). The main reasons were limited time for career and an inappropriate work and life balance. Women specifically cited negative discrimination, limited opportunities, and lack of self-confidence. Discrimination of women at work was perceived by 64% of women vs 47% of men ($P = .003$). Conclusion: Women are perceived as experiencing more difficulties in acquiring a leadership position. Personal preferences may account for an underrepresentation of women in leadership positions, but perceived gender inequalities extend beyond disparities of access to leadership.

DOI: <https://doi.org/10.1093/nop/npz053>

Posted at the Zurich Open Repository and Archive, University of Zurich

ZORA URL: <https://doi.org/10.5167/uzh-191410>

Journal Article

Accepted Version

Originally published at:

Le Rhun, Emilie; Weller, Michael; Niclou, Simone P; Short, Susan; Piil, Karin; Boele, Florian; Rudà, Roberta; Theodorou, Marilena; Brandsma, Dieta; van den Bent, Martin; Dirven, Linda (2020). Gender issues from the perspective of health-care professionals in Neuro-oncology: an EANO and EORTC Brain Tumor Group survey. *Neuro-oncology practice*, 7(2):249-259.

DOI: <https://doi.org/10.1093/nop/npz053>

**Gender issues from the perspective of healthcare professionals in Neuro-oncology:
an EANO & EORTC Brain Tumor Group survey**

Emilie Le Rhun^{1,2}, Michael Weller², Simone P. Niclou³, Susan Short⁴, Karin Piil⁵, Florian Boele⁶, Roberta Rudà⁷, Marilena Theodorou⁸, Dieta Brandsma⁹, Martin van den Bent¹⁰, Linda Dirven^{11,12}, on behalf of the EANO Women in Neuro-Oncology committee

¹ University of Lille, U-1192, F-59000 Lille, France; Inserm, U-1192, F-59000 Lille, France; CHU Lille, General and Stereotaxic Neurosurgery Service, F-59000 Lille, France (ELR)

² Department of Neurology & Brain Tumor Center, University Hospital and University of Zurich, Zurich, Switzerland (ELR, MW)

³ NORLUX Neuro-Oncology Laboratory, Department of Oncology, Luxembourg Institute of Health, Luxembourg, Luxembourg (SN)

⁴ Leeds Institute of Medical Research at St James's, St James's University Hospital, Leeds, LS9 7TF, United Kingdom & Leeds Institute of Health Sciences, Faculty of Medicine and Health, University of Leeds, Leeds, LS2 9JT, United Kingdom (SS)

⁵ Department of Oncology, Copenhagen University Hospital, Rigshospitalet, Copenhagen, Denmark (KP)

⁶ Department of Medical Psychology, VU University Medical Center, PO Box 7057, 1007 MB, Amsterdam, The Netherlands (FB)

⁷ Department of Neuro-oncology, City of Health and Science and University of Turin, Italy (RR)

⁸ Radiotherapy and Radiology Oncology at the Department of Health Sciences at the School of Sciences of European University Cyprus (MT)

⁹ Department of Neuro-oncology, Netherlands Cancer Institute – Antoni van Leeuwenhoek, Amsterdam, The Netherlands (DB)

¹⁰ Brain Tumor Center at Erasmus MC Cancer Institute, University Medical Center Rotterdam, The Netherlands (MVDB)

¹¹ Department of Neurology, Leiden University Medical Center, Leiden, The Netherlands (LD)

¹² Department of Neurology, Haaglanden Medical Center, The Hague, The Netherlands (LD)

Running title: Women in European Neuro-Oncology

Corresponding author: Emilie Le Rhun, MD, PhD, Neuro-oncology, Department of Neurosurgery, Rue Emile Laine, University Hospital – CHRU, 59037 Lille cedex, France
tel: +33.3.20.44.65.42, fax: +33.3.20.44.68.08, email: emilie.lerhun@chru-lille.fr

Funding: none

Conflicts of interest:

ELR has received research grants from Mundipharma and Amgen and honoraria for lectures or advisory board from Abbvie, Daiichy Sankyo, Mundipharma and Novartis.

LD none

SPN none

SS none

KP none

FB none

EM none

RR has received honoraria for lectures or advisory board participation from UCB, Novocure and Eisai.

MT none

DB none

MW has received research grants from Abbvie, Adastr, Bristol Meyer Squibb (BMS), Dracen, Merck, Sharp & Dohme (MSD), Merck (EMD), Novocure, Piquir and Roche, and

honoraria for lectures or advisory board participation or consulting from Abbvie, Basilea, BMS, Celgene, MSD, Merck (EMD), Novocure, Orbus, Roche and Tocagen.

MVDB none

Manuscript word count: abstract: 249, text: 4126, references: 342, figure legends: 72, tables: 3, figures: 2, supplementary notes:2, supplementary tables: 2, supplementary figures: 1, supplementary notes: 2

Abstract

Background: Women represent an increasing proportion of the overall workforce in medicine, but are underrepresented in leadership roles.

Methods: To explore gender inequalities and challenges in career opportunities, a web-based survey was conducted among the membership of the European Association of Neuro-Oncology (EANO) and the Brain Tumor Group of the European Organisation for Research and Treatment of Cancer (EORTC).

Results: Two hundred twenty-eight colleagues responded to the survey, 129 women (median age 45, range 25-66 years) and 99 men (median age 48, range 24-81 years); 153 participants (67%) were married and 157 participants (69%) had at least one child. Women declared less often being married (60% versus 77%, $p=0.007$) or having a child (63% versus 77%, $p=0.024$). Men had more frequently a full-time position (88% versus 75%, $p=0.036$). Both women and men perceived an underrepresentation of women at leadership positions. Half of participants agreed that the most important challenges for women are to lead a team and obtain a faculty position. Fewer women than men would accept such a position (42% versus 56%). The main reasons were limited time for career and an inappropriate work/life balance. Women specifically cited negative discrimination, limited opportunities, and lack of self-confidence. Discrimination of women at work was perceived by 64% of women versus 47% of men ($p=0.003$).

Conclusion: Women are perceived to experience more difficulties to acquire a leadership position. Personal preferences may account for an underrepresentation of women in leadership positions, but perceived gender inequalities extend beyond disparities of access to leadership.

Key words: women, oncology, disparities, equality, leadership

Introduction

Women represented already 75% of the workforce in the healthcare system in 2008 worldwide ¹, and this number is still increasing. According to the Organisation for Economic Cooperation and Development, the proportion of female clinicians increased from 39.1% in 2000 to 46.5% in 2015 ². The role of women in oncology has recently been addressed by several Oncology Societies ³. Although the number of women has increased in experimental and clinical medicine and in oncology, an underrepresentation of women in leading positions is still observed. In a survey conducted by the European Society for Medical Oncology (ESMO), a gap between women and men exists in society boards, presidencies of national or international oncology societies, as well as in the number of invited speakers at oncology meetings ⁴. In 2016, women represented only 7.1% to 46.7% of board members of international societies (12.5% to 40% for European societies), were presidents of Oncology Societies in 9.4% and represented only one-third of invited speakers of 6 international, 9 European, 3 South American and 17 Asian national meetings ⁴. A comparison of the gender leadership gap was performed between 4 large academic European health centers from Austria, Germany, Sweden and the UK. In these countries, 40-60% of the clinicians and medical students were female, however, women represented between 19% and 35% of full professors and between 31% and 40% of senior clinicians.

Efforts are being made to reduce the gender gap on boards and top-level decision-making bodies ⁵. Several initiatives have tried to promote the role of women in medicine and offer guidance to improve advancement in gender equity regarding salary, recruitment, mentorship and sponsorship, research funding, recognition and career advancement. Of note, equity in these initiatives commonly refers to fair processes for both women and men ³.

The European Association of Neuro-Oncology (EANO) was founded in 1994, and counted 674 members in December 2018, including 284 women (42%) and 390 men (58%). EANO has currently 16 board members (including 6 co-opted members), among them 5 women (31%); the 3 established committees (Education, Scientific, Guidelines) are led by 3 male

chairs and include 9 women among the 25 committee members (36%). A predominance of males as keynote speakers, invited speakers or chairs was noted during EANO meetings except the most recent EANO 2018 meeting held in Stockholm (Supplementary Table 1). The European Organisation for Research and Treatment of Cancer (EORTC) Brain Tumor Group is led by four male officers, 5 and 4 male and female senior steering committee members, and 4 and 3 male and female young neuro-oncologists. The six committees of the group are led by 2 men and 4 women.

EANO decided during the 2018 Annual Meeting to explore gender inequalities and challenges in career opportunities for women in the European Neuro-oncology community, and as a first step conducted this survey, as a means of identifying potential options to address such inequalities.

Methods

EANO constituted a Women in Neuro-Oncology (WIN) committee in 2018, chaired by ELR. The first concept for a web-based survey was drafted by ELR and finalized together with members of the WIN committee (SPN, SS, KP, FB, RR, MT, DB, LD), the president of EANO (MvdB) and the chair of the EORTC Brain Tumor Group (MW). The questionnaire was designed to cover experimental and clinical neuro-oncology and included 13 questions on sociodemographic characteristics of the participants and 9 questions on potential issues of gender inequality (Supplementary Note 1). It was sent to the membership of EANO (n=656) and of the EORTC Brain Tumor Group (n=538) in February 2019 via the respective email listings of the two organizations. Only one English version was used. Responses were analyzed stratified for gender of participants. A total of 267 colleagues opened the survey, and 228 colleagues answered to at least one question on gender inequality. Only these 228 colleagues were taken into account for the statistical analysis.

Descriptive statistics were used to describe the responses to the questionnaire and a Chi-square test was used to compare if there were statistically significant differences between

males and females. SPSS (IBM version 23.0) was used for the analyses and a p-value <0.05 was considered statistically significant.

Results

Response rate

Between February 1st 2019 and April 4th, 2019, a total of 228 colleagues responded to at least one question of the survey, and 212 colleagues completed the whole survey. In total, 129 women participated, representing 56% of the participants; 99 men answered, representing 43%. Frequencies of "no response" for the sociodemographic characteristics of participants varied from 0 participants for age, marital status and the number of children, to a maximum of 5 (2.2%) participants for percentage of time on research during and outside office (regular working) hours. In the part of the survey on issues of gender inequality, the number of "no response" varied from 8 (3.5%) regarding the underrepresentation of women at higher positions to 14 (6.1%) regarding the reasons that could explain that women progress less in their career or regarding the opinion about experience on gender discrimination when applying for a position, being the witness of gender discrimination in professional life and giving opinion on positive discrimination for women.

Among women, the number of "no answer" varied from 5 (3.9%) regarding questions on women at higher positions in general to 10 (7.8%) regarding the opinion about experience on gender discrimination when applying for a position, being the witness of gender discrimination in professional life and giving opinion on positive discrimination for women.

Among men, the number of "no answer" varied from 3 (3.0%) to 4 (4%).

Description of the participants

The median age of the overall population was 47 years (range 24-81). Men were older than women, with a median age of 48 years for men versus 45 years for women (p=0.133). Seven

percent of men versus 2% of women were 64-81 years old ($p=0.083$). Most participants were located in Europe ($n=165$, 72.4%) and came mainly from Germany (13%), Belgium (9%) and the UK (9%) (Table 1, Supplementary Table 2). In Germany and Belgium, more men than women responded to the questionnaire (19% versus 8% and 13% versus 6%, respectively). A female dominance was noted in Austria, Italy, Luxembourg, Spain, Sweden and UK among European countries, as well as in Thailand.

Participants were mainly married (67%) or living together with a partner (15%). They declared having no child in 31%. Women declared more often being single than men (15% versus 6%, $p=0.038$). Consistently, they declared being married in 60% versus 77% for males ($p=0.007$). Females had no child in 37% whereas this was the case for only 23% of males ($p=0.024$). The number of children was also significantly different between males and females ($p=0.008$), with at least 3 children reported by 8% of women versus 25% of men. The most frequently represented specialties were neurology (22%), followed by radiation oncology (19%), neurosurgery (17%) and medical oncology (17%). Laboratory researchers were more frequently female ($n=7$, all female, $p=0.017$), neurosurgeons were more frequently male (26% versus 10%, $p=0.002$). The difference was less than 5% for other specialties.

Most participants (51%) had between 6 and 20 years of experience in neuro-oncology or more than 20 years (26%). Participating men had more years of experience in neuro-oncology, with 37% of men having more than 20 years of experience versus only 17% of women ($p=0.001$).

Participants declared they were working in a University Hospital in 73%, in a Research Institution in 23% and in a Municipal Hospital in 15%. More men declared working in a University Hospital (84% versus 64%, $p=0.001$) whereas more women declared working in a Research Institution (29% versus 15%, $p=0.011$).

Most participants work full time (81%). Men had more frequently full-time positions (88% versus 75%, $p=0.036$). Participants spend at least 80% of their regular working time with in- or out-patients in 31%, and at least 50% in 71%.

Women declared no research activity during office hours in 14% versus only 5% for men ($p=0.021$). Of note, all respondents who reported to have research time, also reported that they could spend time on research during office hours. The time spent on research activities during office hours was similar between men and women, at least 50% for 20% of women versus 13% for men ($p=0.126$), and at least 80% for 13% of women versus 6% of men ($p=0.089$). Participants spend at least 5 hours per week on research activities outside office hours in 43% and at least 10 hours per week for these activities in 18% (Table 1). Men declared more hours spent on research activities outside office hours, with more than 10 hours for 27% of men versus 11% of women ($p=0.004$).

Women's positions and opportunities

Most participants felt that women are usually underrepresented in leadership positions, especially in everyday life in their respective countries of practice and in medicine across the world. No significant differences between males and females were observed. An underrepresentation ("quite a bit and very much") of women at higher positions was acknowledged in everyday life at the country of practice by 59%, in medicine across the world by 69%, in medicine at the country level by 44%, in Neuro-oncology across the world by 65%, in neuro-oncology at the country level by 45%, at the institution level by 41% and at the department level by 29% of participants.

An underrepresentation ("quite a bit and very much") of women at higher positions was reported by women notably in medicine across the world in 72%, in neuro-oncology across the world in 71% and in everyday life at the country level in 64%, but less frequently at the department level (32%). An underrepresentation ("quite a bit and very much") of women at higher positions was reported by men in medicine across the world in 66%, in medicine at the country level in 37%, in neuro-oncology across the world in 58% and at the institution level in 56%, in neuro-oncology at the country level in 35%, in everyday life at the country level in 53%, and in 25% at the department level (Table 2, Supplementary Figure 1).

The majority (between 61-87%) of participants did not report that women have fewer opportunities in their professional life. Most difficulties were reported to lead a team (37%) or to obtain a faculty position (39%). Moreover, fewer opportunities were felt for women to obtain third party research funding in 28.5%, to establish collaborations with pharmaceutical companies in 24.1%, to be nominated as study coordinator (global study principle investigator, e.g., at EORTC) in 21.1%, to be local principal local investigator of a clinical trial in 16.3%, to be first or last author on scientific articles in 16.6%, and to be respected by patients in 12.7%. Compared with men, women felt more frequently that there are fewer opportunities for women to lead a team in a hospital or a laboratory (45.0% versus 26.3%, $p=0.002$), to obtain a faculty position / professorship (51.2% versus 23.2%, $p<0.001$), to obtain third party research funding (38.7% versus 15.1%, $p<0.001$), to establish collaborations with pharmaceutical companies (32.6% versus 13.2%, $p<0.001$), to be nominated as study coordinator (29.5% versus 10.1%, $p<0.001$), to be a local principal investigator of a clinical trial (23.3% versus 7.0%, $p=0.002$), or to become last author on scientific articles (23.3% versus 8.1%, $p<0.001$). Less respect from patients for women was estimated to be relevant by 10.9% of men and 15.2% of women ($p=0.055$) (Table 2, Figure 1).

Specific issues related to gender inequality

Participants were then asked whether they would agree to accept a full time Professor position leading a large department with all associated responsibilities: 48% declared they would accept, 46% that they would not accept, and 6% did not answer. Although most participants worked in an University Hospital or in Research Laboratory, only 43% of female versus 56% of male declared they would accept the offer to get a full-time position if offered "tomorrow" ($p=0.0079$) (Table 3). More women than men did not respond to this question (7% versus 4%). The main reasons for women not to accept the offer were lack of interest regarding the administrative tasks in 32%, related to being too young or too old in 18% and work/family balance-related in 16%. For men, the reasons women do not accept such a

position were thought to be mainly lack of interest (40%) and age (15%) (Supplementary Note 2). A large majority of participants (93%) stated that they would accept to have a woman leading the team (Table 3). The only two negative answers were given by women (0.9%), and 13 participants (5.7%) did not answer the question. The main explanations provided by all respondents why women progress less in their career were that they have different priorities in life and at work (n=136, 60%), limited time available for career (n=122, 53%), do not prefer an inappropriate work/life balance (n=113, 50%), followed by limited opportunities provided to women (n=89, 39%) or negative discrimination (n=87, 38%) (Table 3, Supplementary Note 2). Female respondents provided as main reasons different priorities in life and at work (n=75, 58%), inappropriate work/life balance (n=65, 50%), negative discrimination (n=61, 47%), limited opportunities provided to women (n=58, 45%), limited time available for career (n=58, 45%) and lack of self-confidence (n=55, 43%). For male respondents, the main reasons were limited time available for career (n=64, 65%), different priorities in life and at work (n=61, 62%) and an inappropriate work/life balance (n=48, 48%). The limited opportunities provided to women, the negative discrimination and the lack of self-confidence of women were less often cited by men (31%, 26% and 21% respectively) (Table 3, Figure 2A).

About half of participants (60%) declared they have never experienced gender discrimination when applying for a position, whereas 13% of participants declared they had such an experience ("quite a bit or very much") (Table 3, Figure 2B). Only a third of participants (37%) declared that they had never witnessed gender discrimination in professional life, whereas 18% declared that they observed it at least 6 times and 11.4% at least 10 times (Table 3, Figure 2C). When stratifying for gender, women declared never having experienced gender discrimination when applying for a position in 47% versus 77% for men ($p<0.001$). Only 28% of women declared that they never witnessed gender discrimination in their professional life versus 48% of men ($p=0.003$). Discriminations were reported by 61% of women versus 47% of men. These discriminations were observed more than 10 times by 13% of women and 9% of men ($p=0.284$). Examples of discrimination given by women were related to perceived

competence in 58.5% and related to family in 24%. Examples given by men were related to family in 23.5% and to competence in 17.5% (Supplementary Note 2).

Positive discrimination is commonly defined as making sure that people such as women, members of smaller racial groups, and people with disabilities get a fair share of the opportunities available. Positive discrimination for women was reported as a possibility to move the field by half of the participants (59%), whereas 32% stated it should never happen. Differences between males and females were statistically significant: according to female participants a positive discrimination for women can help to move the field in 66% versus 50% for men ($p=0.005$), whereas 23% of women versus 42% of men felt that positive discrimination should never happen ($p=0.003$) (Table 3).

The most important challenges that women face in neuro-oncology practice were leading a team in the hospital or in a laboratory ($n=127$, 56%) and obtaining a professorship ($n=113$, 50%) (Table 3, Figure 2D, Supplementary Note 2).

Discussion

The present study was conducted to explore gender inequalities in career opportunities in the professional Neuro-Oncology community by means of an anonymous, web-based survey among the membership of EANO and of the EORTC Brain Tumor Group. Given the probably extensive overlap of membership in both organizations, we estimate that at least a third of the membership responded. Differences were noted in the demographic characteristics between women and men. Women declared being married less often and being single more often, they also declared having fewer children than men. Although the median age was slightly lower for women than for men (44.5 versus 48 years), the number of participants below 35 was similar (12% for women and 14% for men). Age therefore does not explain the differences in marital status and the presence of children. Despite similar ages, men declared more professional experience than women.

In a survey among the European neurosurgical community, it was also found that women were less often married and had fewer children ⁶. The type of profession also varied with gender, with more female participants being involved in laboratory research (n=7 (100%) versus n=0 (0%)) and more male participants being involved in surgery (26 males (26%) versus 13 females (10%). The survey among the neurosurgery community reported a similar proportion of women in neurosurgery, i.e. 12% ⁶. Men had significantly more often a full-time position (88% versus 75%, p=0.036). Similarly, in a survey among 10,866 UK clinicians 10 years after graduation, 42% women and 7% men worked less than full time ⁷. Most participants declared spending time on research activities outside office hours, however, the time spent on research activities outside office hours was much higher for men than for women (particularly for >10 hours, 27% versus 12%). This result could not be explained by having children, as only a minority (14.6%) of the women without children worked >10 hours on research outside office hours. In this survey, for both women and men, being a general practitioner or not being in a training or senior position was associated with working part time.

The underrepresentation of women at higher positions in the society was mainly perceived by women, and mostly regarding medicine and Neuro-oncology across the world and in everyday life at the country level. Underrepresentation at the local level (i.e. hospital or department) was reported by less than half of the women. Almost half of the women also reported that they have fewer opportunities to obtain a faculty position or a professorship and to lead a team in a hospital or in a laboratory (54% and 48%, respectively). These two main areas were also identified by men, but in a smaller proportion (24% and 37%, respectively). Women reported a stronger feeling of gender inequality than men, as also noted in other surveys ^{6,8}.

According to women, the main reasons that could explain differences in the career opportunities are different priorities in life and at work, an inappropriate work/life balance at higher positions, negative discrimination, limited opportunities provided to women, limited

time available for career and lack of self-confidence. For men, the differences were mainly explained by the limited time available for their career, the different priorities in life and at work, and not preferring an inappropriate work/life balance. The two main reasons for career differences between genders cited in the literature are related to the perceived competence of women and to different priorities in life and may be both related to social and cultural habits. It can be assumed that women are a priori considered less competent for many tasks than men in several societies ⁹. However, in some areas of medicine, such as obstetrics and gynecology, being a man may be negatively perceived, considering social and cultural pressures ¹⁰. Women feel that they have to sacrifice more to reach the same positions than men ⁶. In the UK survey, having children and the partner status were associated with time spent at work ⁷: e.g., having children and notably having several children or living with a partner increased the likelihood of part-time work for women, whereas for men living with partner was linked to a lower likelihood of part-time work, and having children was not associated with time spent at work. The terms 'motherhood penalty' and 'woman penalty' have been proposed by ASCO¹¹ to describe the fact that a woman with a child is expected by the society to stay at home and take care of the child. In the ESMO survey, the main challenge for women was the work and family balance ⁸. One might argue that this work family balance is a personal decision at the couple level. For both, women and men, personal objectives for career implies sacrifices, and for both the best balance according to the choice of lifestyle should be accessible.

Interestingly, numerous papers exploring the role of women in the society refer to a lack of women at leading positions. In our survey, fewer women than men (43% versus 56%) declared they would accept a full-time professor position leading a large department if offered "tomorrow". For both, women and men, the main reason to decline was related to a lack of interest regarding the administrative workload with the goal to focus on patients and research, but women only also cited reasons related to their family organization. Thus, few colleagues may maintain an ambition to lead a team considering all what it implies. Although medicine is usually a multidisciplinary approach, it is interesting to observe the terminology

used to describe the roles in the leadership: leaders, top positions, top decision level bodies, top level management. This wording, distinguishing between a league of top class of highly selected experts and other colleagues that were not selected, also exerts social pressure. It is also interesting to observe that the same behavior is usually socially perceived differently when exhibited by men or women¹¹. Despite underrepresentation in leadership positions, a survey conducted among US women physicians published in 1999 mentioned that 84% were usually, almost always or always satisfied with their own careers ¹², raising the possibility that they have adapted to the circumstances or place genuinely less emphasis on leadership achievement in professional life. No difference in job satisfaction was observed between women and men in a survey among physicians with certification in sport medicine ¹³. As we did not assess whether participants were satisfied with their current profession, we cannot evaluate whether women that perceive difficulties in obtaining leadership roles were less satisfied compared to others

Gender discrimination when applying for a position was perceived at least a little bit by 45% of women versus 20% of men, and was perceived mainly as related to the level of perceived competence by women and as mainly related to family by men. Discrimination at work against women was observed more often by women than men (64% versus 47% respectively). Nevertheless, these numbers are high and support the need for intervention. Interestingly, although the underrepresentation of women in leadership at the local level is perceived as less frequent than at the national or international level, the reported incidence of discrimination during professional life is quite high, indicating that gender-related issues are by no means only associated with leadership accessibility.

Limitations of this study are related to the study design and sample size. As this survey was developed by members of the EANO Women in Neuro-Oncology committee, we may have missed relevant questions, and our answer options may have been suboptimal, preventing participants from completing certain questions. Second, our study population is a selection of the entire working community in neuro-oncology, likely those who are interested in such topics, hampering generalizability of the results. Moreover, the small number of respondents

per discipline prevented sub analyses for this factor, but it can be expected that different professions may have had different opinions on this matter. Furthermore, there is likely to be major variation across European countries. Finally, only an English version was offered which may have reduced the willingness to respond.

Conclusion and perspectives

More and more initiatives to reduce gender inequality are being initiated by international or national societies. The number of women working in medicine is increasing, which will likely be reflected in higher positions as well in due time. Equal access to leadership, independent of gender or other conditions, based on objective, honest and pre-specified scales and criteria should be guaranteed for clinicians who volunteer for these positions. Regular monitoring may help to verify that the same access is guaranteed for all colleagues that are interested in these positions, and that no discriminatory practices are needed. Due to the demographic changes and the dramatic increase of women in medicine, the mentioned issues may become a problem for men in the future. The level of satisfaction regarding work and family balance and the professional goals of both women and men should be the main criteria for future assessment of working conditions in Neuro-Oncology as well as other areas where healthcare is provided. Discrimination related to birthplace, ethnicity, sexual orientation, the decision of having children, should be a focus of attention, too. Taking care of the work environment, including workload, stress, harassment could help to increase the quality of life and quality of work, including ultimately the management of patients by the medical teams.

Acknowledgements

The authors thank Magdalena Mara and Anja Rosenkranz and all the European Association of Neuro-Oncology (EANO) team as well as the European Organisation for Research and

Treatment of Cancer (EORTC) Brain Tumor Group headquarter team for their support. The authors thank all participants for time and effort to work on the questionnaire.

References

1. WHO | Spotlight on health workforce statistics. WHO.
<https://www.who.int/hrh/statistics/spotlight/en/>. Accessed July 14, 2019.
2. The Pursuit of Gender Equality - An Uphill Battle - en - OECD.
<http://www.oecd.org/publications/the-pursuit-of-gender-equality-9789264281318-en.htm>.
Accessed July 14, 2019.
3. Bates C, Gordon L, Travis E, et al. Striving for Gender Equity in Academic Medicine Careers: A Call to Action. *Acad Med*. 2016;91(8):1050-1052.
doi:10.1097/ACM.0000000000001283
4. Hofstädter-Thalmann E, Dafni U, Allen T, et al. Report on the status of women occupying leadership roles in oncology. *ESMO Open*. 2018;3(6):e000423.
doi:10.1136/esmoopen-2018-000423
5. Kuhlmann E, Ovseiko PV, Kurmeyer C, et al. Closing the gender leadership gap: a multi-centre cross-country comparison of women in management and leadership in academic health centres in the European Union. *Hum Resour Health*. 2017;15(1):2.
doi:10.1186/s12960-016-0175-y
6. Steklacova A, Bradac O, de Lacy P, Benes V. E-WIN Project 2016: Evaluating the Current Gender Situation in Neurosurgery Across Europe-An Interactive, Multiple-Level Survey. *World Neurosurg*. 2017;104:48-60. doi:10.1016/j.wneu.2017.04.094
7. Lachish S, Svirko E, Goldacre MJ, Lambert T. Factors associated with less-than-full-time working in medical practice: results of surveys of five cohorts of UK doctors, 10 years after graduation. *Hum Resour Health*. 2016;14(1):62. doi:10.1186/s12960-016-0162-3
8. Banerjee S, Dafni U, Allen T, et al. Gender-related challenges facing oncologists: the results of the ESMO Women for Oncology Committee survey. *ESMO Open*.

2018;3(6):e000422. doi:10.1136/esmoopen-2018-000422

9. Moss-Racusin CA, Dovidio JF, Brescoll VL, Graham MJ, Handelsman J. Science faculty's subtle gender biases favor male students. *Proc Natl Acad Sci USA*.

2012;109(41):16474-16479. doi:10.1073/pnas.1211286109

10. Hughes F, Bernstein PS. Sexism in obstetrics and gynecology: not just a "women's issue". *Am J Obstet Gynecol*. 2018;219(4):364.e1-364.e4.

doi:10.1016/j.ajog.2018.07.006

11. Women in Oncology: Breaking Down Barriers and Looking to the Future | ASCO Connection. <https://connection.asco.org/magazine/features/women-oncology-breaking-down-barriers-and-looking-future>. Accessed July 14, 2019.

12. Frank E, McMurray JE, Linzer M, Elon L. Career satisfaction of US women physicians: results from the Women Physicians' Health Study. Society of General Internal Medicine Career Satisfaction Study Group. *Arch Intern Med*. 1999;159(13):1417-1426.

13. Pana AL, McShane J. Gender influences on career opportunities, practice choices, and job satisfaction in a cohort of physicians with certification in sports medicine. *Clin J Sport Med*. 2001;11(2):96-102.

Figure legends

Figure 1: Perceived opportunities at work for women. Distribution of answers are given for all participants or stratified by gender

Figure 2: Perceived challenges and gender discrimination at work. A Main reason felt to explain that women progress less in their career, B Experienced gender discrimination when applying for a position, C Experienced gender discrimination during professional life, D Most important perceived gender issues and challenges that women face in Neuro-oncology practice.

Supplementary material

- supplementary Tables 1 and 2
- supplementary Figure 1
- supplementary Notes 1 and 2

Supplementary Table 1. Gender representation at EANO meetings

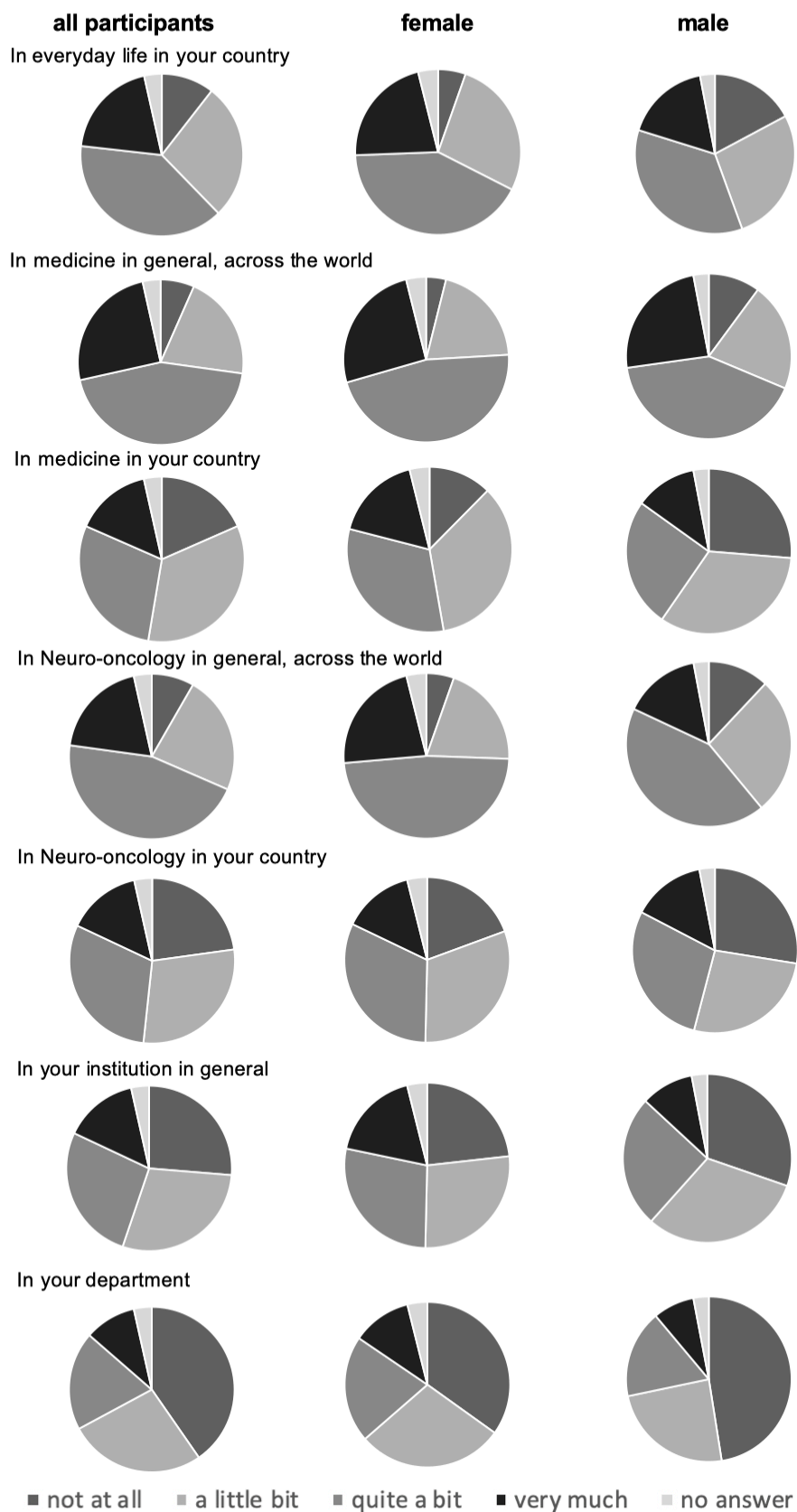
	Total number of participants	Keynote speakers	Invited speakers	Invited chairs	Abstract selected for oral presentation
2014 Turin					
All	989	3	72	43	92
Female	442 (44.5%)	0 (0%)	21 (29%)	9 (21%)	39 (42.5%)
Male	547 (55.5%)	3 (100%)	51 (71%)	34 (79%)	53 (57.5%)
2016 Mannheim					
All	790	3	88	50	56
Female	342 (43%)	0 (0%)	23 (26%)	18 (36%)	22 (39.5%)
Male	448 (56.5%)	3 (100%)	32 (64%)	32 (64%)	34 (60.5%)
2018 Stockholm					
All	910	NA	99	54	44
Female	456 (50%)	NA	43 (43.5%)	25 (46.5%)	22 (50%)
Male	454 (49.89%)	NA	56 (57%)	29 (53.5%)	22 (50%)

Supplementary Table 2. Country of residence

	Total	Female	Male
OUTSIDE OF EUROPE			
Australia	2 (0.9%)	2 (1.6%)	0 (0%)
Brazil	1 (0.4%)	1 (0.8%)	0 (0%)
China	1 (0.4%)	0 (0%)	1 (1.0%)
China Hong Kong Macao	1 (0.4%)	0 (0%)	1 (1.0%)
Indonesia	1 (0.4%)	1 (0.8%)	0 (0%)
Israel	12 (5.3%)	7 (5.4%)	5 (5.1%)
Japan	1 (0.4%)	1 (0.8%)	0 (0%)
Laos	1 (0.4%)	1 (0.8%)	0 (0%)
Mexico	1 (0.4%)	0 (0%)	1 (1.0%)
Nigeria	1 (0.4%)	1 (0.8%)	0 (0%)
Republic of Korea	1 (0.4%)	0 (0%)	1 (1.0%)
Senegal	1 (0.4%)	1 (0.8%)	0 (0%)
South Sudan	9 (3.9%)	4 (3.1%)	5 (5.1%)
Swaziland	8 (3.5%)	5 (3.9%)	3 (3.0%)
Thailand	17 (7.5%)	11 (8.5%)	6 (6.1%)
United Arab Emirates	2 (0.9%)	1 (0.8%)	1 (1.0%)
USA	3 (1.3%)	1 (0.8%)	2 (2.0%)
No answer	1 (0.4%)	1 (0.8%)	0 (0%)

Supplementary Figure 1: Perceived representation of women at work

Do you have the impression that women are underrepresented at higher positions?



Supplementary Note 1: Questionnaire



QUESTIONNAIRE ON GENDER ISSUES FOR EANO MEMBERS

Sociodemographic information

- **Sex:** ☐ Male ☐ Female
- **Age in years:**
- **Country of residence:** _____
- **Are you:** ☐ Single
☐ Married
☐ Living together with partner
☐ Partner, not living together
☐ Divorced
☐ Widow/widower
- **How many children do you have?**
- **Profession:**
 - ☐ Epidemiologist
 - ☐ Laboratory Researcher
 - ☐ Medical Oncologist
 - ☐ Molecular Biologist
 - ☐ Neurologist
 - ☐ Neuropsychologist
 - ☐ Neuroradiologist
 - ☐ Neurosurgeon
 - ☐ Nurse specialist Neuro-Oncology
 - ☐ Pathologist
 - ☐ Physiotherapist
 - ☐ Psychologist
 - ☐ Radiation Oncologist
 - ☐ Speech disorders specialist
 - ☐ Other, i.e.: _____
- **Years of experience in Neuro-Oncology practice/research:**
 - ☐ 0-1 year



QUESTIONNAIRE ON GENDER ISSUES FOR EANO MEMBERS

- ☐ 2-5 years
- ☐ 6-20 years
- ☐ more than 20 years

• **Type of institution you work in?**

- ☐ Municipal hospital
- ☐ University hospital
- ☐ Research institution
- ☐ Other, i.e.: _____

• **How many days do you work per week per contract?**

- | | |
|---|---|
| <input type="checkbox"/> 10% (0.5 day) | <input type="checkbox"/> 60% (3 days) |
| <input type="checkbox"/> 20% (1 day) | <input type="checkbox"/> 70% (3.5 days) |
| <input type="checkbox"/> 30% (1.5 day) | <input type="checkbox"/> 80% (4 days) |
| <input type="checkbox"/> 40% (2 days) | <input type="checkbox"/> 90% (4.5 days) |
| <input type="checkbox"/> 50% (2.5 days) | <input type="checkbox"/> 100% (5 days) |

• **What percentage of time of your regular working hours do you spend with in- or out-patients?**

- | | | |
|------------------------------|------------------------------|-------------------------------|
| <input type="checkbox"/> 0% | <input type="checkbox"/> 40% | <input type="checkbox"/> 80% |
| <input type="checkbox"/> 10% | <input type="checkbox"/> 50% | <input type="checkbox"/> 90% |
| <input type="checkbox"/> 20% | <input type="checkbox"/> 60% | <input type="checkbox"/> 100% |
| <input type="checkbox"/> 30% | <input type="checkbox"/> 70% | |

• **What percentage of time do you spend on research activities during office hours?**

- | | | |
|------------------------------|------------------------------|-------------------------------|
| <input type="checkbox"/> 0% | <input type="checkbox"/> 40% | <input type="checkbox"/> 80% |
| <input type="checkbox"/> 10% | <input type="checkbox"/> 50% | <input type="checkbox"/> 90% |
| <input type="checkbox"/> 20% | <input type="checkbox"/> 60% | <input type="checkbox"/> 100% |
| <input type="checkbox"/> 30% | <input type="checkbox"/> 70% | |

• **How many hours do you spend per week on research activities outside office hours?**

- | | |
|----------------------------------|-------------------------------------|
| <input type="checkbox"/> 0 hours | <input type="checkbox"/> 5-10 hours |
|----------------------------------|-------------------------------------|



QUESTIONNAIRE ON GENDER ISSUES FOR EANO MEMBERS

☐ 1-5 hours

☐ >10 hours

Gender issues

A gender issue is defined as: any issue or concern determined by gender-based differences between women and men.

• **Do you have the impression that women are underrepresented at higher positions:**

	Not at all	A little bit	Quite a bit	Very much
– In everyday life in your country?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
– In medicine in general, across the world?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
– In medicine in your country?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
– In neuro-oncology in general, across the world?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
– In neuro-oncology in your country?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
– In your institution in general?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
– In your department?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

• **Do you feel that women have less opportunities to:**

	Not at all	A little bit	Quite a bit	Very much
– Lead a team in the hospital or in a laboratory?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
– Obtain a faculty position / professorship?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
– Obtain third party research funding?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
– Establish collaborations with pharmaceutical companies?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
– Be nominated as study coordinator of clinical trials?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
– Be local principal investigator of a clinical trial?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
– Be first or last author on scientific articles?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
– Be respected by patients?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

• **If you were offered tomorrow a full time Professor position leading a large Department with all the responsibilities that it implies, would you say:**



QUESTIONNAIRE ON GENDER ISSUES FOR EANO MEMBERS

☐ Yes ☐ No

○ If no, you may explain your decision here (free text): _____

- **Would you accept to have a woman - with all required qualifications and skills - leading your clinical or research team?**

☐ Yes ☐ No

- **According to you, what are the main reasons that could explain that women progress less in their career:**

☐ Limited opportunities provided to women

☐ Negative discrimination

☐ Limited time available for career

☐ Inappropriate work/life balance

☐ Different priorities in life/at work

☐ Limited intrinsic motivation/ambition

☐ Lack of self-confidence

☐ Other: please explain _____

- **Did you ever experience gender discrimination when applying for a position?**



QUESTIONNAIRE ON GENDER ISSUES FOR EANO MEMBERS

- ☐ Not at all
- ☐ A little bit
- ☐ Quite a bit
- ☐ Very much

- **Have you ever been witness of gender discrimination in your professional life?**

- ☐ Never
- ☐ 1-5 times
- ☐ 6-10 times
- ☐ >10 times

- **If yes, can you give examples (without names)?** _____

- **How do you feel about positive discrimination for women (e.g. grants specifically for women)?**

- ☐ It should never happen
- ☐ It can help to move the field
- ☐ It should be mandatory

- **What are in your opinion the three most important gender issues and challenges women face in Neuro-oncology practice?**

- ☐ Lead a team in the hospital / laboratory
- ☐ Obtain a professorship
- ☐ Obtain third party research funding
- ☐ Establish collaborations with pharmaceutical companies
- ☐ Act as study coordinator of a clinical trial
- ☐ Act as local principal investigator of a clinical trial
- ☐ Be first or last author on scientific papers



QUESTIONNAIRE ON GENDER ISSUES FOR EANO MEMBERS

☐ Be respected by patients

☐ Other, i.e.: _____

☐ Other, i.e.: _____

- **Any additional comments?** _____

2. Supplementary Note 2: Comments from individual participants*

**Q17: If you were offered tomorrow a full time Professor position leading a large Department with all the responsibilities that it implies, would you say
If no, you may explain your decision here:**

FEMALE (55 comments)

NOT INTERESTED (n=18)

- I would feel I would have to accomplish / learn more before being able to lead other people, including financial leadership aspects.
- I would prefer working with patients/ direct patient contact above a leadership position. And I would not have enough time to combine both when I have children in the future.
- I have other interests outside my job, and although my job is important to me, I would not sacrifice the rest of my life for it!
- I have just spent a year as Interim Director of our academic radiation oncology department. I was successful in the role but i) I am not especially academic compared with my interest in clinical work and ii) I do not want to work full-time which the job requires. That is not because I am a woman per se but because I like work-life balance.
- I do not have such goals.
- My ambition is not to lead a large department, I do not believe my talents lie there. A subdepartment perhaps yes.
- No time for private life. I feel not prepared to do this job.
- No interest for leading a department !
- It's not my ambition to become professor.
- I do not have enough research merits to take a professor position. However, I would not hesitate to take for instance a position as head of clinic.
- It spend much time and responsibilities that I cannot assume.
- Work part time and a single parent so don't have the time.
- I am too old for a change of that dimension, and I am afraid of the bureaucracy.
- I prefer to spend more time on patients.
- I don't want to be a professor.
- I don't want to work full time with Research, want 50% patients.
- It could be a very stressful and I just want to be work as a doctor.
- Not appropriate for me but if it was, the commitment would be daunting, as women generally have to work harder than men to be accepted as equal.

AGE RELATED (n=10)

- Because I do not have the experience yet to complete such a task. If this would be later in my career I would definitely consider.
- Still need to learn a lot.
- If I would be at the beginning or in the middle of the professional career, with strong professional team in neuro-oncology, support of colleagues,...the upper answer may be different.
- I am soon retiring and do not have the qualifications. Otherwise the answer would be yes.
- Not yet experienced and knowledge.
- I am not qualified to do that (yet).

- I don't think I have enough experience yet.
- Too young and unexperienced yet. Possibly in 10 years, I will do it.
- I should have said yes if I were 20 years younger!

WORK FAMILY BALANCE DECISION (n=9)

- I would not have enough time for my family life.
- Not enough time with 2 children.
- My daughter is three months old and I am on maternity leave.
- Due to family organization and child management.
- It would be too much to arrange in our family, because my husband has already such a position.
- Due to my little son I couldn't manage a full time Professor position and the education of my son.
- My child is 2 years old now and thus, I would not have the capacity right now.
- Yes if in my city; perhaps no, if in a different place, in relation with my child necessities.
- This is an example of the lifestyle choice glass ceiling. Assuming others thought I was appointable and adequately qualified, I would feel I could do this if I wanted to, but it is so demanding I'm not sure I could maintain work-life balance. However, as my children get older I may step up more.

MALE (32 comments)

HAVE IT ALREADY (n=1)

- I have it already.

NOT INTERESTED (n=13)

- Administrative work burden.
- Not interested in responsibility for coworkers in that sense.
- Not interested in the paperwork.
- Would reduce clinical activity too much according to what I like.
- It depends on the type of department, but if management tasks formed a considerably larger part of my work that (supervision of) research and clinical duties, I would probably decline.
- Not interested. I prefer to see patients than administrative work.
- I am quite happy with the kind of work I do now: head of department means people management and finances, so you have little time left for clinical and research activities, education, all the things I like most. Besides, via the scientific organisation of radiation oncologists I can do a lot of work for the profession itself.
- I don't want to lead a large department.
- I have a much better position: seeing patients and doing (In The Netherlands, a management position in a hospital is not necessarily something for academic winners)
- I don't want to be a Professor.
- Too much work associated with organising, paper work, dissatisfied personnel, political issues, etc.
- Too much work and I don't want to manage a team especially in my institution where everybody is always complaining about everything.
- Clinical confrontation is essential for my balance, too much administrative tasks, procedures, justifications.

AGE RELATED (n=5)

- I am happy with my present position at the age of 59, not looking forward to a new position.
- It is more appropriate to get a younger colleague, and why not a female.
- Because of my age, within 20 months I have to leave due to my age
- Near to retirement.
- Missing experiences in leadership as well as in medical healthcare relating to young age.

Q19: According to you, what are the main reasons that could explain that women progress less in their career:

Limited opportunities provided to women

Negative discrimination

Limited time available for career

Inappropriate work/life balance

Different priorities in life/at work

Limited intrinsic motivation/ambition

Lack of self-confidence

Other

Other: please explain

FEMALE (5 answers)

- Not a lack of self-confidence; many women do not over-estimate themselves/ do not practice self-promotion as do some men.
- Men favor men. A lot of people still think that women are in duty for childcare. Because of maternity leave women are disadvantaged in their career.
- Pregnancy and children.
- To make a gross over-generalization, I think women tend to underestimate their ability to do a particular job whilst men over-estimate their capacity.
- Lack of role-models; lack of acceptance in society of ambitious women.

MALE (4 answers)

- Men are currently overrepresented in leading positions, and people tend to select candidates who resemble themselves.
- What I saw several times at our institution: when it comes to leading a team and advancing their careers on a new level, women stopped short of that next important step even as opportunity was clearly offered.
- Institutional sexism.
- I do not agree with the assumption implied within the question.

Q21: Have you ever been witness of gender discrimination in your professional life? If yes, can you give examples (without names)?

FEMALE (29 answers)

COMPETENCES

- Men think neurosurgery is only for men.
- Male residents were preferred for OR; male residents were thought to have achieved a certain level of expertise rather than women, who however were of the same (or even higher) level of training; jokes on female colleagues (more often than on male) by male colleagues; male colleagues are mostly preferred for "prestige"-projects or -collaborations; etc.
- Patients wanting to see the real doctor; being called a nurse simply because you're female; few women in senior management posts or with excellence awards.
- It is hardly ever obvious discrimination. But women usually need more support than men to believe that they are capable for a job and do not receive this. There are very few women on high management level. So all the examples are still male.
- It is not so much specific occasions, but more of a general tendency for people to listen more to the opinions of male doctors/researchers than to their female colleagues.
- Dismissive attitudes - men (and women) preferentially addressing men rather than women. Comments made by women ignored subsequently affirmed when male makes same comment. Neurosurgical colleague told to dance on table so female trainees know what is expected of them.
- I think in subtle ways yes but could not enumerate them. For example I have seen (and personally experienced) a woman's opinion being somewhat discounted in an MDM, even if her opinion is essentially restated by a man (and then accepted by the meeting as the decision) 5 minutes later. The man may also be considerably less experienced in this sort of scenario. A woman has to work much harder to establish professional respect. In neuro-oncology there is certainly a 'boy's club' around referrals. We only have women in our radiation oncology team in our public practice so there is less opportunity to observe chauvinism in our own team.
- Females are treated in Serbia as not being good enough to be surgeons, there is quite amount of sexual provocation also.
- Several times from patients - "when is the real doctor coming in?". Some more invisible deals made by men in the gym, over a beer, meetings etc.
- Generally, men are more easily appointed professorships.
- In general, men are more frequently hired, when they have similar resumés as women or even when they have lower qualifications. This might be, because there are already so many women in the field. Or that men speak up more, in general, there are many more young male professors instead of females, where I do not see the difference in their career path (men vs women).
- Men getting promotions and women having career advancement delayed (e.g. at the fellow/registrar level). Men progressing to professorships much earlier in their career than women.
- After medical studies when jobs were scarce for beginners it was openly said into my face that they will not take a female if I do not bring my uterus in a formalin glas. As head of department I got bossed by higher CEO not being able to scope with strong women.
- Males get promoted with less experience and expertise than women. Women have to much more experience to get the same promotions as men.
- I have worked for ten years as "gender representative" in the medical university and took part in roughly 60 nominating commissions for full professorships. In this time I could raise the number of female professors from 5 to 13, also succeeding in the nomination of three clinical professors (all three with juridical contestation of the rivaling male candidates). I have heard all the "quality arguments" against female professors and a lot of lies about male and female candidates.
- I am not aware of an overt example of discrimination for a position, but discrimination is in most cases a subtle (even non-conscious) event, e.g. no/too few women nominated into advisory boards, evaluation panels, selection committees, proposed

as invited speakers, as chairs, organizers etc. This is very difficult to quantify, but it happens on a regular basis most likely in each institution.

- 1. Shortly after my Fellowship in Neuro-Oncology (3 years as an attending) I walked into to see a new male patient and he said (visibly disappointed): "I thought I was coming here to see a specialist" to which I replied "Would you like me to walk out of this room and then walk back in?" at which time he realized what he had said. 2. During that same year as a new attending I was standing by the bedside evaluating swallow in a patient. A male cardiologist walked in (even though I had on a white coat, had a medical bag and was clearly evaluating the patient). He ignored me, took his own history and then walked out without saying anything. I was quite upset and told my department chair that the cardiologist clearly thought that I was a speech therapist. When my chair (kind man) went to the cardiologist to ask him who had been in the room with him and his patient he replied "Oh, just some speech therapist". 3. I have seen many examples of women standing on a podium at a national meeting introduced by their first names when the male physicians are introduced as Dr. (often with several sentences about their accomplishments, too) 4. The female co-director of one of our cancer programs just found out that the male was given a stipend for the position that had not been part of her offer.

WORK FAMILY BALANCE DECISION

- It's more frequent when you are young and you have to juggle with your life at home (children) and your job. These years of 'career building' are easier for men.
- I was bullied by a male manager who saw me as a threat. He tried to discourage my manager from promoting me. A manager refused to open up a job opportunity to job share, as he believed that it could not be done by 2 part time people, which discriminated against potential women applicants.
- Things I have heard/seen happen: - 'Let's not hire any more young women, they go on maternity leave all the time' - 'How about we hire a man this time to balance the distribution of males/females' - Another example is a male negotiating higher salary for a post which should be linked to equal pay.
- Women doctors with children are removed from neurosurgical oncological teams in order to give their place to younger male neurosurgeons that finish their core formation in Neurosurgery.
- Often it is a question of having a family, and then you, as a woman, will not be expected to manage both work and family.
- Gender preference for postdoc recruitment "as women may be pregnant which could affect the progress of a project" was asked during an interview if I plan to have children.
- Career finished because of pregnancy. Work contract was not continued. She had to leave the department. Less chances for being involved in operations.

OTHER

- Pay raise, promotion, leading of projects.
- Working with patient (rarely) and presenting as main coordinator of the projects.
- Long story. Think about mobbing to defend a Young colleague from sexual stalking.
- 1. Shortly after my Fellowship in Neuro-Oncology (3 years as an attending) I walked into to see a new male patient and he said (visibly disappointed): "I thought I was coming here to see a specialist" to which I replied "Would you like me to walk out of this room and then walk back in?" at which time he realized what he had said. 2. During that same year as a new attending I was standing by the bedside evaluating swallow in a patient. A male cardiologist walked in (even though I had on a white coat, had a medical bag and was clearly evaluating the patient). He ignored me, took

his own history and then walked out without saying anything. I was quite upset and told my department chair that the cardiologist clearly thought that I was a speech therapist. When my chair (kind man) went to the cardiologist to ask him who had been in the room with him and his patient he replied "Oh, just some speech therapist". 3. I have seen many examples of women standing on a podium at a national meeting introduced by their first names when the male physicians are introduced as Dr. (often with several sentences about their accomplishments, too) 4. The female co-director of one of our cancer programs just found out that the male was given a stipend for the position that had not been part of her offer.

- A male colleague that asks you to participate on something specific and then answers your emails always putting a male senior in cc - a male medical head of the hospital that tells you that you have to have your hair attached and wear glasses if you want to be taken seriously - a male professor who asks you during an official tumor board meeting why you are at hospital at 5 because you should take care of your children at that time - a male boss who requests your presence early morning in his office because he has something very important to tell you and tries to kiss you 1 minute after you entered his office - a male boss who explains that he refuses to be alone with a woman in a separate closed room or in an elevator.
- Often people refer to groups of women as "girls" etc. Although I'm not sure that counts as discrimination it does set a precedent for women being "lower" than men in the hierarchy.

MALE (17 answers)

COMPETENCES

- Early days of my career, when e.g. females were not supposed to get into surgery.
- A feeling that women are 'not as strong' in surgery and assumption that they would choose a family over the long and unfriendly hours that surgical apprenticeship (training) requires. I do not agree with these views, which are an oversimplification. Even schooling for girls in the sciences is biased against them, often subconsciously (two of my three children are girls).
- My female colleague who is also study coordinator is sometimes taken for an intern while I am often taken for a physician (we are the same age.)

WORK FAMILY BALANCE DECISION

- Comments on potential pregnancy plans that should be postponed when hiring people for a certain position. Requirement to be female for a leadership position that becomes available.
- Derogatory remarks about women. Women being discouraged to become pregnant.
- Limiting number of female trainees to decrease risk of losing them for work due to possible pregnancy.
- I am a male and faced significant kickback from my head of departments, some consultant surgeons and fellow resident doctors because I took six month of parental leave (my legal right) in the first year of my son's life. This leave was planned well in advance. Nevertheless, I have been on the end of significant discrimination on my return to work, losing my standing in my department, facing inappropriate comments from seniors, not being allocated to surgeries that I would otherwise be, all because I took parental leave. Although this study is focused on discrimination faced by women, I strongly believe that these issues also affect men.

OTHER

- In both ways! Negative and positive discrimination in positions, both at high level, professorships.
- There has been severe gender discrimination against men in finding commissions for professorships. Women had to get the position to meet current gender politics. If there were 25 male applications and 1 female, the woman had to get the job.
- Getting positions, keeping positions, getting responsibilities.
- Now women are a majority in health care, gender discrimination is less. When I started, 25 years ago, women were strongly preferred.
- Positive discrimination - women need to be invited when they apply for positions, even if not qualified Negative discrimination - women in white are nurses....., or at least not the decision makers in difficult clinical situations, from the point of view of patients, relatives, nurses, etc.
- There are tenure tracks exclusively for women, positive gender discrimination.

Q23: What are in your opinion the most important gender issues and challenges women face in Neuro-oncology practice?

Other, i.e.:

Lead a team in the hospital / laboratory

Obtain a professorship

Obtain third party research funding

Establish collaborations with pharmaceutical companies

Act as study coordinator of a clinical trial

Act as local principal investigator of a clinical trial

Be first or last author on scientific papers

Be respected by patients

Other

Other: please explain

FEMALE (7 answers)

- Work/life balance.
- Don't know.
- Be respected by male colleagues.
- I do not believe that medical oncologists and radiation oncologist have gender discrimination problem, but it is a big problem in surgery.
- For women to be given adequate time within their working hours i.e. their 'free' time tends to be more occupied with family and other commitments than men's 'free' time.
- Women can do all of these. The only issue is that success breeds success - it is difficult to get a major grant if you have never had one before, but that is true for men too.
- With patients: seniority & gender

MALE (10 answers)

- None.
- None.
- None of the above.
- None of the above as much as I can see in my country.

- I don't see any issues in neuro-oncology practice.
- I do not think that any of these are issues in the context in which I work.
- More for women to answer: I have no knowledge that these issues play a role in my country or profession (may be different for surgeons).
- Time for research.
- Find time to do the things mentioned above; too much multi-tasking; more delegation of tasks...and willingness to do so.
- These issues should not be different for females. Gender should not matter.

Q24: Any additional comments?

FEMALE (18 comments)

- In the 20 years that I have been around the brain tumor community I have noticed an increase in brain surgeons and oncologists which is great. In general women often bring a more collaborative and open minded way of working, the need to boost one's own ego is not as important. The appropriate number of women in any setting helps services to develop more quickly and be more user focused.
- Moving the field for women in my opinion would include moving the field for men too. Women may feel negatively discriminated as family / child carers but this should be considered a parent, not women issue, and assisting men with kids (e.g. working part time) would help the corresponding women too. Specific grants for women should not be considered the best Approach, as this positive discrimination will always lead to less consideration for the work done within this Special Setting - however, reserving Special grants for Family parents would maybe be more valued.
- The mindset needs to be changed: where a man is called enthusiastic and engaged, a woman is called having a temper and emotional. This needs to be changed.
- I don't think we have any major gender-difficulties in Denmark in neuro-oncology
- While this is an issue in better developed countries, it is even a more serious issue in the less developed countries.
- In my experience gender is major problem for female neurosurgeons. In Serbia we do not have opportunity to participate in clinical studies regardless the gender, and it is not a problem for basic research and academic carrier.
- I think the difficulty is due to male language and male rules of play in higher positions.
- As I am only peripherally involved in neuro-oncology my statements are more from observation.
- Female discrimination in Neuro-Oncology/Neurosurgery should be investigated in Portugal. Only few women (generally the ones that are "protected" by their bosses) have the opportunity to have access to leadership in neuro-oncology investigation or hospital teams.
- About the question on positive discrimination - I don't think there should be specific grants or positions only for women, it would only imply that women need special privileges because they aren't as good researchers/leaders/doctors as men. The important thing is to evaluate applications for research grants and leading positions in the hospital based on achievements and not let personal relations or other factors stand in the way. Men in high positions tend to choose other men as coworkers.
- I cannot believe that in 2019 we still in the UK have very few female professors. We have a number of female PI's/leads but males are always preferentially promoted over these excellent females. Also, conferences have male invited keynote speakers when there are a number of females doing great work, it needs to be more balanced.

- This survey is focused on academic neuro-oncology. Many of us work in university hospitals, but work for the health service and not the university, so the question of leading research teams is not relevant to many neuro-oncologists, more the issue is can we fit research into our normal health service job. You didn't ask about that and it is difficult if there is no funding for time, and we are expected to by local PI and recruit patients to trials without any time to manage the extra paper work. That isn't a gender issue. You also didn't ask about working with neurosurgeons, who are predominantly male. I did experience gender discrimination before I started my post 22 years ago when one of the surgeons said to me I was doing a 'girly thing' having a baby and working part time! I already had the job and was due to start in 2 months. That knocked my confidence a bit, but I have never experienced anything like that since. I was able to increase to full time working after 10 years part time.
- I believe gender issues are most likely not specific to neuro-oncology, I therefore wonder to what extent it makes sense to address it at such a (rather small) scale.
- More support programs for women in academic institutions, more and early career mentoring.
- My opinion is that women or men, everyone must have the same chance to be a leader, to conduct a research or a clinical trial, to be first or last as author of a publication. What is important is not gender but the professional skill.
- An excellent initiative, thank you.
- Nice that EANO raises this question.

MALE (5 comments)

- Without doubts it is a difference between north Europe and for instance the view by some of the leading people in EANO - regarding the view about gender perspective. Even if the EANO in Stockholm was a great step forward there is a need of improvement and it was a surprise to experience the view by some male.
- I agree, there is a need to have more women in leading positions. But: To provide a good quality, qualification is more important than gender. (Underqualified) "Quota Women" are never happy.
- In our hospital and department I really see no important gender issues.
- Thank you.
- Good job.

*original answers with typographical errors corrected

Table 1. Characteristics of the participants

	All participants (n=228)	Female (n=129)	Male (n=99)
Gender			
Female	129 (56.6%)	129 (100%)	NA
Male	99 (43.4%)	NA	99 (100%)
Age			
Median (range)	47 (24-81)	45 (25-66)	48 (24-81)
24-34	30 (13.2%)	16 (12.4%)	14 (14.1%)
35-44	72 (31.6%)	47 (36.4%)	25 (25.3%)
45-54	59 (25.9%)	32 (24.8%)	27 (27.3%)
55-64	57 (25.0%)	31 (24.0%)	26 (26.3%)
65-81	10 (4.4%)	3 (2.3%)	7 (7.1%)
	Total	Female	Male
Europe			
Austria	6 (2.6%)	5 (3.9%)	1 (1.0%)
Belgium	21 (9.2%)	8 (6.2%)	13 (13.1%)
Cyprus	1 (0.4%)	1 (0.8%)	0 (0%)
Czech Republic	1 (0.4%)	0 (0%)	1 (1.0%)
Denmark	5 (2.2%)	5 (3.9%)	0 (0%)
Finland	1 (0.4%)	1 (0.8%)	0 (0%)
France	15 (6.6%)	8 (6.2%)	7 (7.1%)
Germany	29 (12.7%)	10 (7.8%)	19 (19.2%)
Greece	3 (1.3%)	2 (1.6%)	1 (1.0%)
Iceland	1 (0.4%)	0 (0%)	1 (1.0%)
Ireland	2 (0.9%)	2 (1.6%)	0 (0%)
Italy	13 (5.7%)	9 (7.0%)	4 (4.0%)
Latvia	1 (0.4%)	0 (0%)	1 (1.0%)
Luxembourg	5 (2.2%)	4 (3.1%)	1 (1.0%)
Norway	1 (0.4%)	1 (0.8%)	0 (0%)
Poland	1 (0.4%)	1 (0.8%)	0 (0%)
Portugal	1 (0.4%)	1 (0.8%)	0 (0%)
Romania	2 (0.9%)	1 (0.8%)	1 (1.0%)
Russian Federation	1 (0.4%)	0 (0%)	1 (1.0%)
Slovak Republic	1 (0.4%)	1 (1%)	0 (0%)
Spain	4 (1.8%)	3 (2.3%)	1 (1.0%)
Sweden	17 (7.5%)	11 (8.5%)	6 (6.1%)
Switzerland	5 (2.2%)	1 (0.8%)	4 (4.0%)
United Kingdom	21 (9.2%)	13 (10.1%)	8 (8.1%)
The Netherlands	5 (2.2%)	2 (1.6%)	3 (3.0%)
Turkey	1 (0.4%)	1 (0.8%)	0 (0%)
Outside of Europe	62 (27.2%)	37 (28.7%)	25 (25.3%)
No answer	1 (0.4%)	1 (0.8%)	0 (0%)
Familial situation			
Single	25 (11.0%)	19 (14.7%)	6 (6.1%)
Married	153 (67.1%)	77 (59.7%)	76 (76.8%)
Living together with partner	35 (15.4%)	22 (17.1%)	13 (13.1%)
Partner not living together	6 (2.6%)	3 (2.3%)	3 (3.0%)
Divorced	8 (3.5%)	7 (5.4%)	1 (1.0%)
Widow/widower	1 (0.4%)	1 (0.8%)	0 (0%)
Number of children			
0	71 (31.1%)	48 (37.2%)	23 (23.2%)
1	41 (18.0%)	24 (18.6%)	17 (17.2%)
2	80 (35.1%)	46 (35.7%)	34 (34.3%)
3	28 (12.3%)	8 (6.2%)	20 (20.2%)
4	8 (3.5%)	3 (2.3%)	5 (5.1%)
≥5	0 (0%)	0 (0%)	0 (0%)
Profession			
Epidemiologist	1 (0.4%)	1 (0.8%)	0 (0%)
Laboratory researcher	7 (3.1%)	7 (5.4%)	0 (0%)
Medical oncologist	38 (16.7%)	24 (18.6%)	14 (14.1%)
Molecular biologist	8 (3.5%)	5 (3.9%)	3 (3.0%)
Neurologist	51 (22.4%)	28 (21.7%)	23 (23.2%)
Neuropsychologist	2 (0.9%)	1 (0.8%)	1 (1.0%)
Neuroradiologist	2 (0.9%)	1 (0.8%)	1 (1.0%)
Neurosurgeon	39 (17.1%)	13 (10.1%)	26 (26.3%)
Nurse specialist in Neuro-Oncology	4 (1.8%)	4 (3.1%)	0 (0%)
Pathologist	4 (1.8%)	2 (1.6%)	2 (2.0%)
Radiation Oncologist	44 (19.3%)	22 (17.1%)	22 (22.2%)
Speech disorder specialist	1 (0.4%)	1 (0.8%)	0 (0%)
Other	24 (10.5%)	17 (13.2%)	7 (7.1%)

No answer	3 (1.3%)	3 (2.3%)	0 (0%)
Number of years of experience in neuro-oncology			
0-1	5 (2.2%)	3 (2.3%)	2 (2.0%)
2-5	44 (19.3%)	30 (23.3%)	14 (14.1%)
6-20	118 (51.8%)	72 (55.8%)	46 (46.5%)
More than 20	60 (26.3%)	23 (17.8%)	37 (37.4%)
No answer	1 (0.4%)	1 (0.8%)	0 (0%)
Type of institution*			
Municipal hospital	34 (14.9%)	20 (15.5%)	14 (14.1%)
University hospital	166 (72.8%)	83 (64.3%)	83 (83.8%)
Research institution	53 (23.2%)	38 (29.5%)	15 (15.2%)
Other	11 (4.8%)	8 (6.2%)	3 (3.0%)
No answer	2 (0.9%)	2 (1.6%)	0 (0%)
Multiple institutions	38 (16.7%)	22 (17.1%)	16 (16.2%)
Number of days worked per week per contract			
10% (0.5 day)	2 (0.9%)	1 (0.8%)	1 (1.0%)
20% (1 day)	0 (0%)	0 (0%)	0 (0%)
30% (1.5 days)	0 (0%)	0 (0%)	0 (0%)
40% (2 days)	0 (0%)	0 (0%)	0 (0%)
50% (2.5 days)	1 (0.4%)	1 (0.8%)	0 (0%)
60% (3 days)	2 (0.9%)	2 (1.6%)	0 (0%)
70% (3.5 days)	3 (1.3%)	2 (1.6%)	1 (1.0%)
80% (4 days)	22 (9.6%)	18 (14.0%)	4 (4.0%)
90% (4.5 days)	11 (4.8%)	5 (3.9%)	6 (6.1%)
100% (5 days)	184 (80.7%)	97 (75.2%)	87 (87.9%)
No answer	3 (1.3%)	3 (2.3%)	0 (0%)
Percentage of time of regular working time spent with in- or out-patients			
0 (0 day)	30 (13.2%)	23 (17.8%)	7 (7.1%)
10% (0.5 day)	6 (2.6%)	2 (1.6%)	4 (4.0%)
20% (1 day)	2 (0.9%)	0 (0%)	2 (2.0%)
30% (1.5 days)	10 (4.4%)	6 (4.7%)	4 (4.0%)
40% (2 days)	13 (5.7%)	8 (6.2%)	5 (5.1%)
50% (2.5 days)	29 (12.7%)	11 (8.5%)	18 (18.2%)
60% (3 days)	33 (14.5%)	18 (14.0%)	15 (15.2%)
70% (3.5 days)	31 (13.6%)	18 (14.0%)	13 (13.1%)
80% (4 days)	42 (18.4%)	22 (17.1%)	20 (20.2%)
90% (4.5 days)	20 (8.8%)	12 (9.3%)	8 (8.1%)
100% (5 days)	8 (3.5%)	5 (3.9%)	3 (3.0%)
No answer	4 (1.8%)	4 (3.1%)	0 (0%)
Percentage of time spent on research activities during office hours			
0 (0 day)	23 (10.1%)	18 (14.0%)	5 (5.1%)
10% (0.5 day)	76 (33.3%)	38 (29.5%)	38 (38.4%)
20% (1 day)	38 (16.7%)	14 (10.9%)	24 (24.2%)
30% (1.5 days)	37 (16.2%)	24 (18.6%)	13 (13.1%)
40% (2 days)	10 (4.4%)	4 (3.1%)	6 (6.1%)
50% (2.5 days)	7 (3.1%)	2 (1.6%)	5 (5.1%)
60% (3 days)	5 (2.2%)	5 (3.9%)	0 (0%)
70% (3.5 days)	5 (2.2%)	3 (2.3%)	2 (2.0%)
80% (4 days)	3 (1.3%)	2 (1.6%)	1 (1.0%)
90% (4.5 days)	4 (1.8%)	2 (1.6%)	2 (2.0%)
100% (5 days)	15 (6.6%)	12 (9.3%)	3 (3.0%)
No answer	5 (2.2%)	5 (3.9%)	0 (0%)
Hours spent per week on research activities outside office hours			
0 hours	25 (11.0%)	17 (13.2%)	8 (8.1%)
1-5 hours	99 (43.4%)	64 (49.6%)	35 (35.4%)
5-10 hours	57 (25.0%)	28 (21.7%)	29 (29.3%)
>10 hours	42 (18.4%)	15 (11.6%)	27 (27.3%)
No answer	5 (2.2%)	5 (3.9%)	0 (0%)

* multiple choices possible, NA: not applicable

Table 2. Women's positions and opportunities

	All participants (n=228)					Female (n=129)					Male (n=99)				
	Not at all	A little bit	Quite a bit	Very much	No answer	Not at all	A little bit	Quite a bit	Very much	No answer	Not at all	A little bit	Quite a bit	Very much	No answer
Do you have the impression that women are underrepresented at higher positions?															
In everyday life in your country?	24 (10.5%)	62 (27.2%)	89 (39.0%)	45 (19.7%)	8 (3.5%)	7 (5.4%)	35 (27.1%)	54 (41.9%)	28 (21.7%)	5 (3.9%)	17 (17.2%)	27 (27.3%)	35 (35.4%)	17 (17.2%)	3 (3.0%)
In medicine in general, across the world?	15 (6.6%)	47 (20.6%)	101 (44.3%)	57 (25.0%)	8 (3.5%)	5 (3.9%)	26 (20.2%)	60 (46.5%)	33 (25.6%)	5 (3.9%)	10 (10.1%)	21 (21.2%)	41 (41.4%)	24 (24.2%)	3 (3.0%)
In medicine in your country?	42 (18.4%)	78 (34.2%)	66 (28.9%)	34 (14.9%)	8 (3.5%)	16 (12.4%)	45 (34.9%)	41 (31.8%)	22 (17.1%)	5 (3.9%)	26 (26.3%)	33 (33.3%)	25 (25.3%)	12 (12.1%)	3 (3.0%)
In Neuro-oncology in general, across the world?	19 (8.3%)	53 (23.2%)	104 (45.6%)	44 (19.3%)	8 (3.5%)	7 (5.4%)	26 (20.2%)	62 (48.1%)	29 (22.5%)	5 (3.9%)	12 (12.1%)	27 (27.3%)	42 (42.4%)	15 (15.2%)	3 (3.0%)
In Neuro-oncology in your country?	52 (22.8%)	66 (28.9%)	69 (30.3%)	33 (14.5%)	8 (3.5%)	25 (19.4%)	40 (31.0%)	41 (31.8%)	18 (14.0%)	5 (3.9%)	27 (27.3%)	26 (26.3%)	28 (28.3%)	15 (15.2%)	3 (3.0%)
In your institution in general?	60 (26.3%)	66 (28.9%)	61 (26.8%)	33 (14.5%)	8 (3.5%)	30 (23.3%)	35 (27.1%)	36 (27.9%)	23 (17.8%)	5 (3.9%)	30 (30.3%)	31 (31.3%)	25 (25.3%)	10 (10.1%)	3 (3.0%)
In your department?	92 (40.4%)	61 (26.8%)	44 (19.3%)	23 (10.1%)	8 (3.5%)	45 (34.9%)	37 (28.7%)	27 (20.9%)	15 (11.6%)	5 (3.9%)	47 (47.5%)	24 (24.2%)	17 (17.2%)	8 (8.1%)	3 (3.0%)
Do you feel that women have less opportunities to															
Lead a team in the hospital or in a laboratory?	55 (24.1%)	77 (33.8%)	59 (25.9%)	25 (11.0%)	12 (5.3%)	20 (15.5%)	43 (33.3%)	41 (31.8%)	17 (13.2%)	8 (6.2%)	35 (35.4%)	34 (34.3%)	18 (18.2%)	8 (8.1%)	4 (4.0%)
Obtain a faculty position / professorship?	49 (21.5%)	78 (34.2%)	53 (23.2%)	36 (15.8%)	12 (5.3%)	14 (10.9%)	41 (31.8%)	42 (32.6%)	24 (18.6%)	8 (6.2%)	35 (35.4%)	37 (37.4%)	11 (11.1%)	12 (12.1%)	4 (4.0%)
Obtain third party research funding?	80 (35.1%)	71 (31.1%)	50 (21.9%)	15 (6.6%)	12 (5.3%)	29 (22.5%)	42 (32.6%)	39 (30.2%)	11 (8.5%)	8 (6.2%)	51 (51.5%)	29 (29.3%)	11 (11.1%)	4 (4.0%)	4 (4.0%)
Establish collaborations with pharmaceutical companies?	86 (37.7%)	75 (32.9%)	40 (17.5%)	15 (6.6%)	12 (5.3%)	37 (28.7%)	42 (32.6%)	34 (26.4%)	8 (6.2%)	8 (6.2%)	49 (49.5%)	33 (33.3%)	6 (6.1%)	7 (7.1%)	4 (4.0%)
Be nominated as study coordinator of clinical trials?	93 (40.8%)	75 (32.9%)	36 (15.8%)	12 (5.3%)	12 (5.3%)	39 (30.2%)	44 (34.1%)	32 (24.8%)	6 (4.7%)	8 (6.2%)	54 (54.5%)	31 (31.3%)	4 (4.0%)	6 (6.1%)	4 (4.0%)
Be local principal investigator of a clinical trial?	114 (50.0%)	65 (28.5%)	25 (11.0%)	12 (5.3%)	12 (5.3%)	54 (41.9%)	37 (28.7%)	22 (17.1%)	8 (6.2%)	8 (6.2%)	60 (60.6%)	28 (28.3%)	3 (3.0%)	4 (4.0%)	4 (4.0%)
Be first or last author on scientific articles?	111 (48.7%)	67 (29.4%)	27 (11.8%)	11 (4.8%)	12 (5.3%)	48 (37.2%)	43 (33.3%)	24 (18.6%)	6 (4.7%)	8 (6.2%)	63 (63.6%)	24 (24.2%)	3 (3.0%)	5 (5.1%)	4 (4.0%)
Be respected by patients?	113 (49.6%)	74 (32.5%)	21 (9.2%)	8 (3.5%)	12 (5.3%)	61 (47.3%)	46 (35.7%)	13 (10.1%)	1 (0.8%)	8 (6.2%)	52 (52.5%)	28 (28.3%)	8 (8.1%)	7 (7.1%)	4 (4.0%)

Table 3. Gender issues

	All participants (n=228)	Female (n=129)	Male (n=99)
If you were offered tomorrow a full time Professor position leading a large Department with all the responsibilities that it implies, would you say			
Yes	110 (48.2%)	55 (42.6%)	55 (55.6%)
No	105 (46.1%)	65 (50.4%)	40 (40.4%)
No answer	13 (5.7%)	9 (7.0%)	4 (4.0%)
Would you accept to have a woman - with all required qualifications and skills - leading your clinical or research team?			
Yes	213 (93.4%)	118 (91.5%)	95 (96.0%)
No	2 (0.9%)	2 (1.6%)	0 (0%)
No answer	13 (5.7%)	9 (7.0%)	4 (4.0%)
According to you, what are the main reasons that could explain that women progress less in their career*			
Limited opportunities provided to women	89 (39.0%)	58 (45.0%)	31 (31.3%)
Negative discrimination	87 (38.2%)	61 (47.3%)	26 (26.3%)
Limited time available for career	122 (53.5%)	58 (45.0%)	64 (64.6%)
Inappropriate work/life balance	113 (49.6%)	65 (50.4%)	48 (48.5%)
Different priorities in life/at work	136 (59.6%)	75 (58.1%)	61 (61.6%)
Limited intrinsic motivation/ambition	22 (9.6%)	15 (11.6%)	7 (7.1%)
Lack of self-confidence	76 (33.3%)	55 (42.6%)	21 (21.2%)
Other	10 (4.4%)	5 (3.9%)	5 (5.1%)
Did you ever experience gender discrimination when applying for a position?			
Not at all	137 (60.1%)	61 (47.3%)	76 (76.8%)
A little bit	47 (20.6%)	36 (27.9%)	11 (11.1%)
Quite a bit	24 (10.5%)	17 (13.2%)	7 (7.1%)
Very much	6 (2.6%)	5 (3.9%)	1 (1.0%)
No answer	14 (6.1%)	10 (7.8%)	4 (4.0%)
Have you ever been witness of gender discrimination in your professional life?			
Never	84 (36.8%)	36 (27.9%)	48 (48.5%)
1-5 times	88 (38.6%)	55 (42.6%)	33 (33.3%)
6-10 times	16 (7.0%)	11 (8.5%)	5 (5.1%)
>10 times	26 (11.4%)	17 (13.2%)	9 (9.1%)
No answer	14 (6.1%)	10 (7.8%)	4 (4.0%)
How do you feel about positive discrimination for women (e.g. grants specifically for women)?			
It should never happen	72 (31.6%)	30 (23.3%)	42 (42.4%)
It can help to move the field	135 (59.2%)	85 (65.9%)	50 (50.5%)
It should be mandatory	7 (3.1%)	4 (3.1%)	3 (3.0%)
No answer	14 (6.1%)	10 (7.8%)	4 (4.0%)
What are in your opinion the most important gender issues and challenges women face in Neuro-oncology practice?*			
Lead a team in the hospital / laboratory	127 (55.7%)	72 (55.8%)	55 (55.6%)
Obtain a professorship	113 (49.6%)	72 (55.8%)	41 (41.4%)
Obtain third party research funding	55 (24.1%)	38 (29.5%)	17 (17.2%)
Establish collaborations with pharmaceutical companies	38 (16.7%)	23 (17.8%)	15 (15.2%)
Act as study coordinator of a clinical trial	46 (20.2%)	24 (18.6%)	22 (22.2%)
Act as local principal investigator of a clinical trial	38 (16.7%)	19 (14.7%)	19 (19.2%)
Be first or last author on scientific papers	37 (16.2%)	20 (15.5%)	17 (17.2%)
Be respected by patients	36 (15.8%)	13 (10.1%)	23 (23.2%)
Other	20 (8.8%)	10 (7.8%)	10 (10.1%)

* multiple choices possible

Figure 1
Do you feel that women have less opportunities to

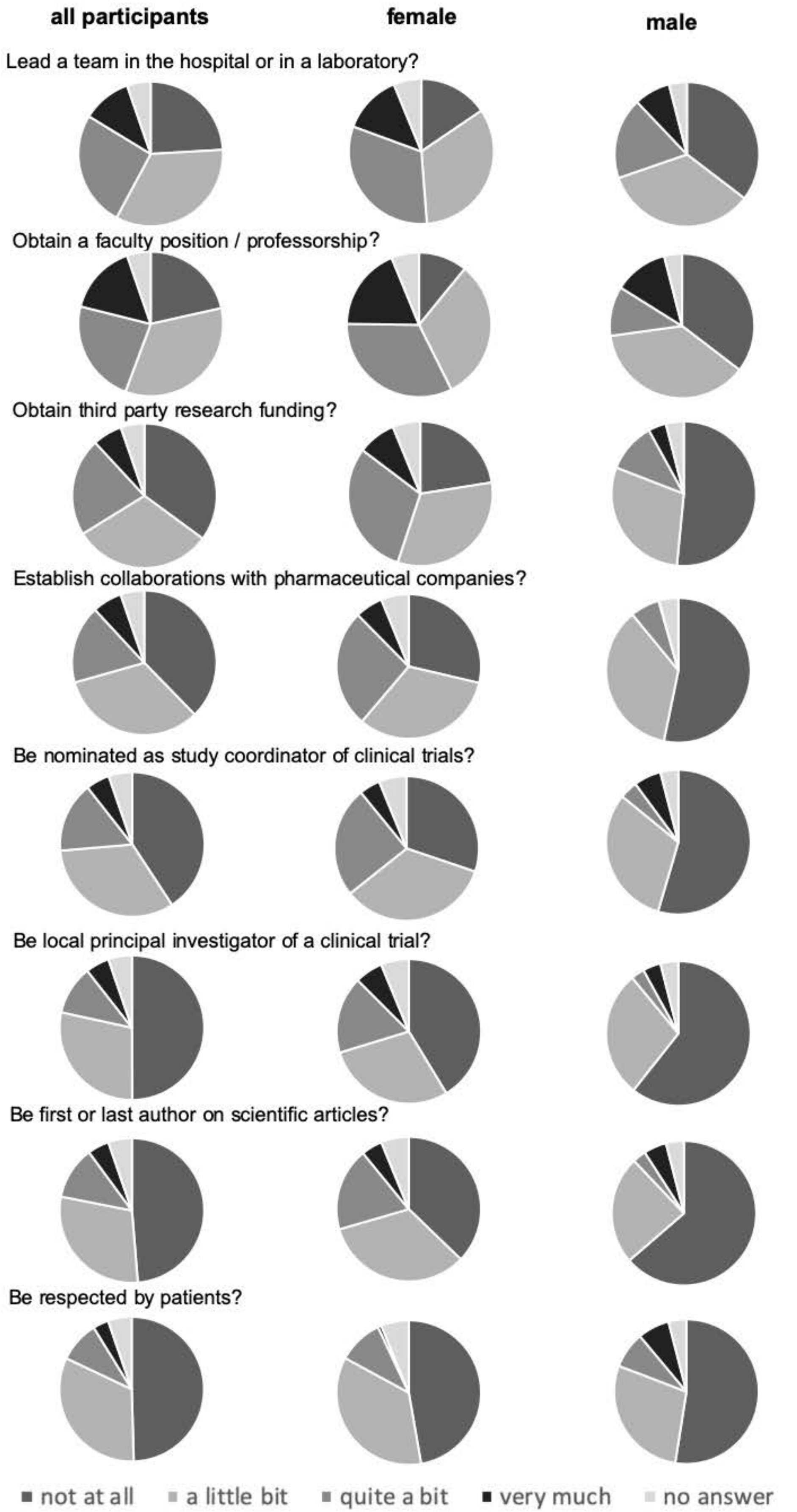
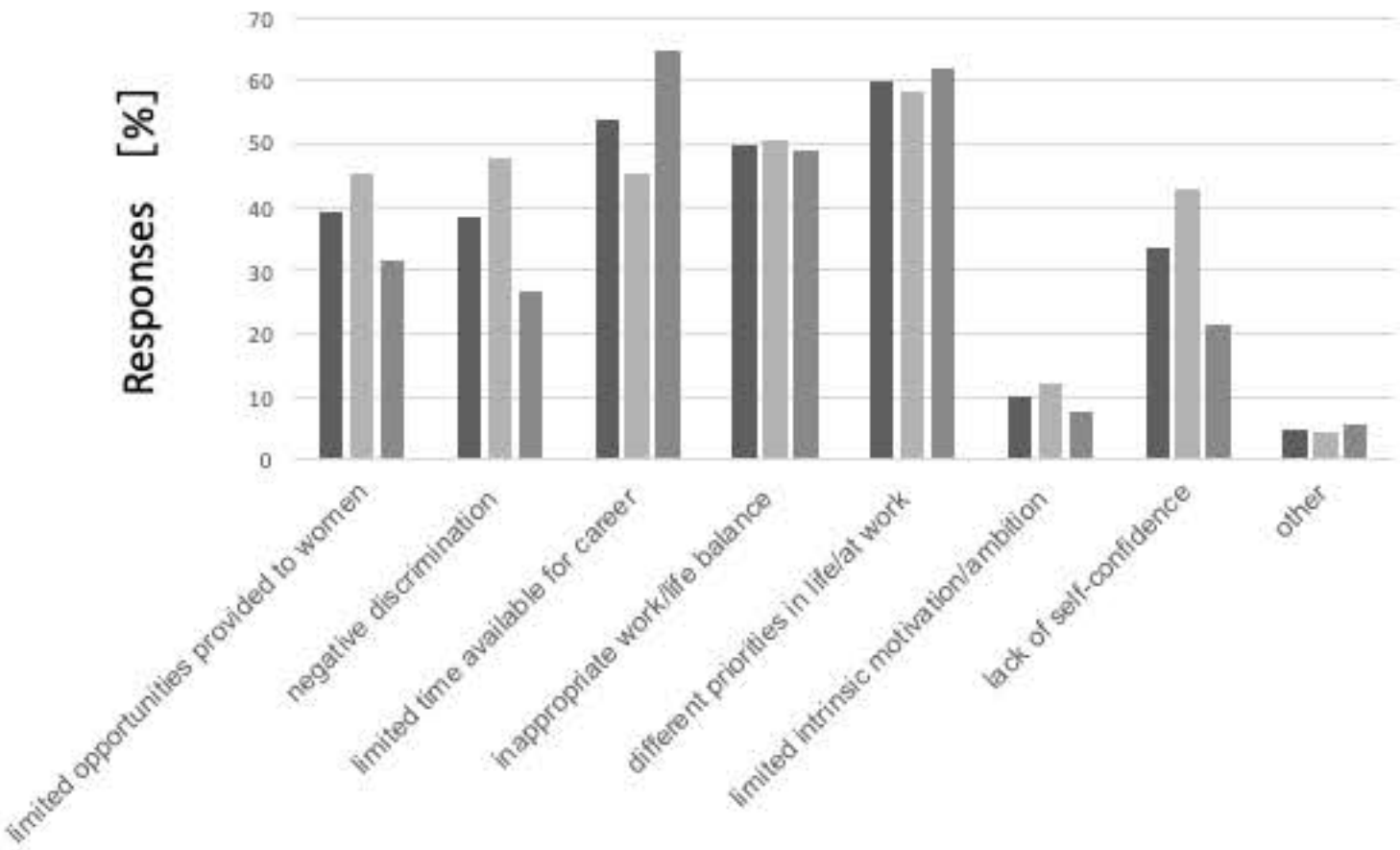
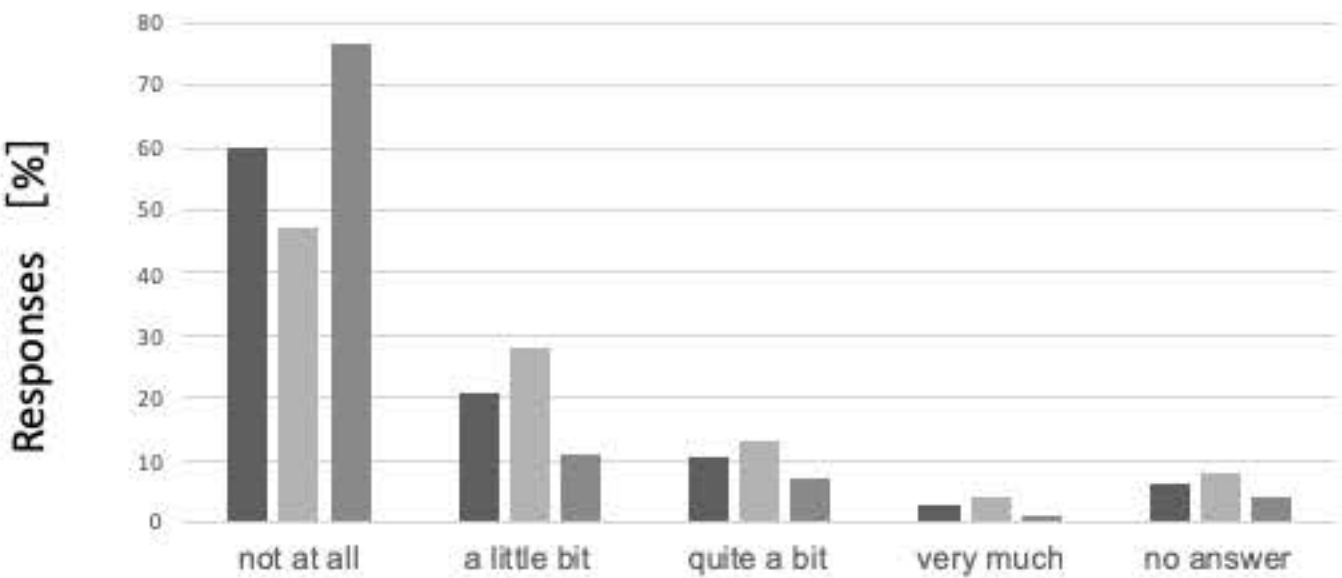


Figure 2

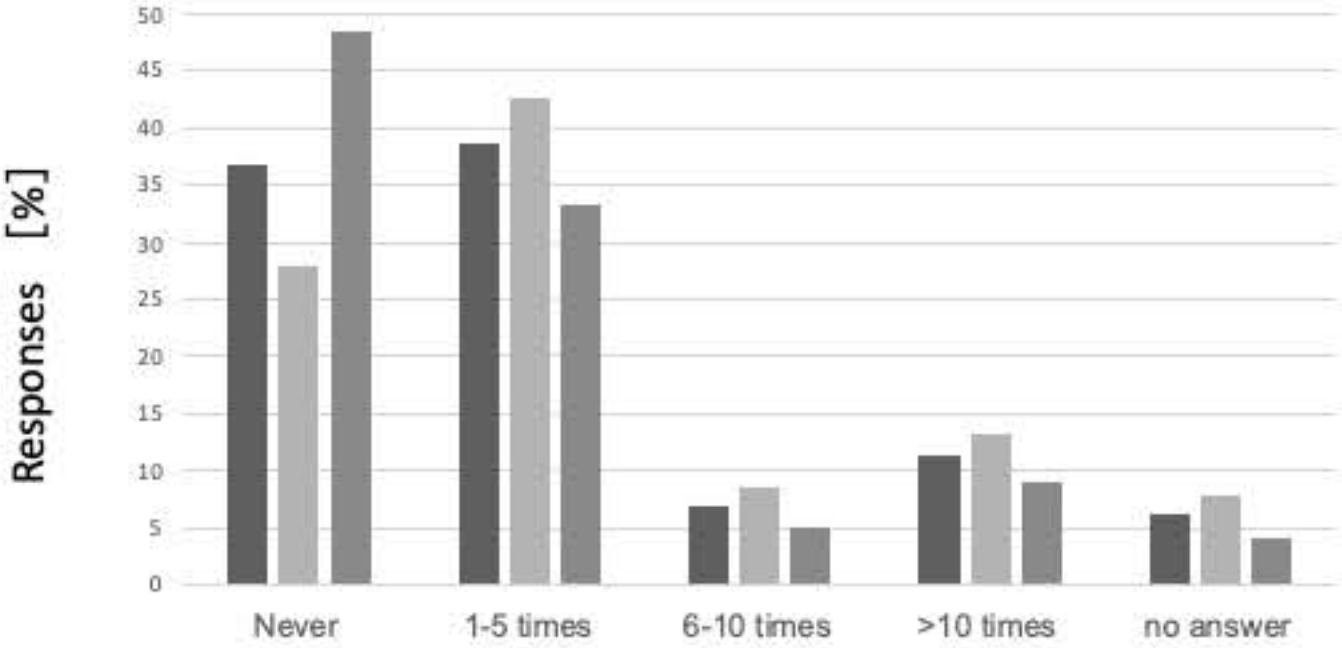
A: According to you, what are the main reasons that could explain that women progress less in their career (multiple choices)



B: Did you ever experience gender discrimination when applying for a position?



C: Have you ever been witness of gender discrimination in your professional life?



D: What are in your opinion the most important gender issues and challenges women face in Neuro-oncology practice?

